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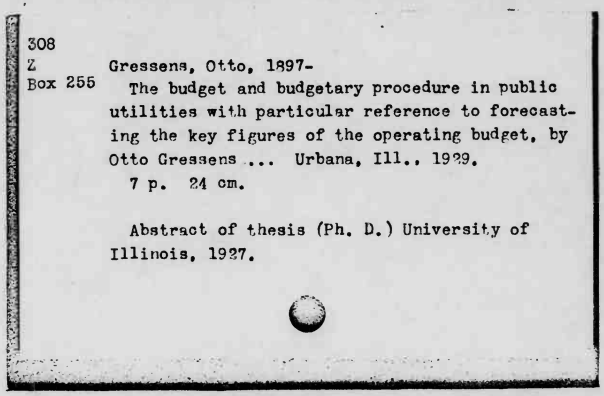

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THE BUDGET AND BUDGETARY PROCEDURE IN PUBLIC UTILITIES WITH PARTICULAR REFERENCE TO FORECASTING THE KEY FIGURES OF THE OPERATING BUDGET

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BY
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B.S., University of Illinois, 1921
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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN ECONOMICS IN THE GRADUATE SCHOOL OF THE UNIVERSITY OF ILLINOIS, 1927

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THE BUDGET AND BUDGETARY PROCEDURE IN PUBLIC UTILITIES, WITH PARTICULAR REFERENCE TO FORECASTING THE KEY FIGURES OF THE OPERATING BUDGET

The problem of the budget in a business enterprise is essentially different from the budget problems of governments, or of families. In the latter cases, the problem resolves itself into allocating a known income over the various consumptive activities. In the former case, the problem about which budgeting centers is the estimation of income for definite future periods from productive activities. This estimation is made difficult by the short term movements of the so-called business cycle. The irregularity of these movements makes it impossible to reduce them to a 'law' as can be done in the case of the trend movement or the seasonal in most historical economic and business data. Budgeting to the business cycle presents, therefore, the major problem in forecasting the activities of an individual business.

The budget has become a particularly necessary administrative tool in the case of public utilities. The complexity of many of these companies, the heavy capital investment necessary to render the services which they offer, the close state regulation to which they are subject, and the importance of good relations with their customers make budgeting a highly important function. The practice of budgeting has, as a matter of fact, been increasingly adopted by these companies in the last few years. By anticipating the wants of the communities which the respective companies serve, they can increase the esteem of their customers, and thus make an important contribution to good public relations.

In public utility companies, the budget is generally divided into:

1. The Operating Budget.
2. The Investment Budget.
3. The Materials and Supplies Budget.
4. The Cash Budget.

The administration of the budget is usually placed in a Budget Bureau or Budget Department. This is almost always the case in companies of considerable size. This Budget Department is responsible to the Budget and Expense Committee, composed of the executives of the company. All of the routine labor incident to the checking of the estimated monthly figures with the actual monthly results is performed in this department. The control of the Budget is thus made a specialized, delegated duty. On account of the heavy capital investment in public utilities, the Investment Budget offers the greatest difficulties, compared with the other budgets, both in estimating its amount, and in controlling the work in progress. All of the other budgets, however, depend on the Operating Budget for their estimated amounts. The Operating Budget is thus the key to all of the estimated activity of a particular company.

The procedure of establishing the estimates, and of controlling the activities of a company depends on the organization which has been built up in the company. There is no uniformity of organization among public utilities. It varies, rather, from company to company, and the budgetary procedure, therefore, also varies from company to company. An element of uniformity, however, is introduced by the similarity which, in spite of variations, is found in the accounting systems. The budget must be so detailed that the estimates can be compared with the actual figures of the period account by account. In so far, therefore, as the accounting systems are similar, the details of the budgetary procedure are similar. Considerable evidence of this general similarity was found on examination of the budget manuals of a number of companies, and during the time spent in the budget departments of a number of public utility companies.

The estimates of the General Budget, summarized from the detailed estimates of the various departments of a company, are a reflection of numerous personal judgments of the future activity of the company in question. The first duty of the Budget Department, therefore, is to judge the adequacy of the combined results of these numerous estimates. In order to do this, the Department must have not only an intimate knowledge of the internal affairs and the market conditions of the company, but it must also have analyzed the past experience of the business. It must, in other words, be prepared to make its own estimate

of the activity of the business for the future budget period. Since the Operating Budget contains the key figures for all of the other estimates of the various activities of the business, the Budget Department ought, therefore, to be prepared to check the summarized estimates which originate with the various departments with its own estimates of the Operating Budget. Such estimates can best be arrived at by the Budget Department by preparing statistical forecasts of the key figures of the Operating Budget.

The statistical forecast of the Operating Budget figures involves the theory and methods of analyzing time series. The various methods which have been proposed for this purpose are based on fundamental assumptions concerning the nature of economic and business time series which are often not applicable to these data. An examination of these methods in the light of the nature of such series reveals the fact that most of them are applicable to special cases only because of their *a priori* assumptions. The only general method for analyzing these series is one which is based on the sole assumption that continuous variation is the normal condition of such data.

The analysis of the Operating Budget series into their factors makes possible the projection of these factors. The trend and the seasonal offer no particular difficulties in this respect. The so-called cycle, however, on account of the irregularity of its movements, is a difficult factor to estimate for future periods. The so-called general business indexes and barometers are not helpful in most cases for forecasting this element in an individual business because of the heterogeneous character of the data which are used in their construction. An individual business is dependent on the conditions of its own market, and these conditions determine the movements of its own "cycle." An examination of the detailed construction of a number of these general indexes and barometers shows the fallacy of the assumption that they can be of material aid in forecasting the "cycle" of a business, particularly when that business has a restricted market in a restricted locality. Public utility companies are types of businesses, the various operating units of which are definitely restricted in respect to both markets and localities. In the case of the so-called local utilities, therefore, these general indexes and barometers are not helpful for forecasting the "cycle" movements.

Considered from the point of view of these "cyclical" movements, however, public utility companies are relatively stable enterprises. The fluctuations of these short term movements are usually confined within comparatively narrow limits. It becomes possible, therefore, to forecast these movements within limits sufficiently narrow for practical purposes. By projecting the trend and the seasonal for a definite future period, and projecting the "cycle" as a band within which it is reasonable to expect that this movement will be confined, barring all sporadic fluctuations, a statistical forecast of gross revenues, physical output, etc., can be prepared. This forecast can then be modified according to definite information as to changes in business policy, tendencies in the markets of the particular business, etc., etc. A comparison of the estimated figures of the summarized General Budget with these independent forecasts of the Operating Budget figures prepared by the Budget Department will aid materially in judging the adequacy of the summarized detail estimates. By making the preparation of such independent forecasts a duty of the Budget Department, the danger of allowing budgetary control to degenerate into a stereotyped routine will be obviated, particularly if this Department is also charged with the responsibility of preparing, or supervising the preparation of revised estimates whenever this becomes necessary.

Several illustrations of statistical forecasts of gross revenues and physical output of a public utility company show that such forecasts can be prepared within limits sufficiently narrow for practical purposes. This offers an important aid in establishing effective budgetary control in public utilities.

VITA

The author was born in Sterling, Illinois, December 2, 1897. He attended the Sterling Public Schools and for three years attended the Sterling Township High School. He graduated from the West Chicago High School in June, 1916. In September, 1917 he entered the University of Illinois. In September, 1918 he enlisted in the Naval Reserve Forces. He was given an indefinite leave in December, 1918 and an honorable discharge in June, 1920. In June, 1921 he graduated from the University of Illinois, College of Commerce and Business Administration with the B.S. degree. He received his M.S. degree from the Graduate School of the University of Illinois in August, 1924. He was assistant in research in the Bureau of Business Research from September, 1923, until February, 1926, and was appointed statistician of the Bureau of Business Research in September, 1926.

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